

Pronotum granulate and with fine punctation, with few to no large punctures; dorsal surface with moderate luster; discal intervals more or less clearly convex
..... *expansa* LeConte

Checklist of species of *Vrilletta*

- Vrilletta* LeConte, 1874, p. 64
- Pseudoxyletinus* Pic, 1903, p. 182.
 - bicolor* White
 - blaisdelli* Fall, 1905, p. 194
 - californica* Fisher, 1939, p. 175
 - convexa* LeConte, 1874, p. 65
 - decorata* VanDyke, 1918, p. 7
 - expansa* LeConte, 1874, p. 64
 - laurentina* Fall, 1905, p. 195
 - murrayi* LeConte, 1874, p. 64
 - pectinicornis* White
 - plumbea* Fall, 1905, p. 196

Uncertain status

- fulvolineata* (Pic), 1903,
p. 182 (probably *decorata*)
- nigra* Pic, 1905, p. 171 (possibly
convexa or *pectinicornis*)

Acknowledgments

I thank David H. Kavanaugh, California Academy of Sciences (CASC), for loan of specimens, and William H. Tyson for the

donation of a specimen. The initials USNM refer to the United States National Museum of Natural History, Washington, D.C.

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Studies of Neotropical Caddisflies, XXIX: The Genus Polycentropus (Trichoptera: Psychomyiidae)

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ABSTRACT

Fifteen new species of the genus *Polycentropus* are described and the male genitalia figured. The holotypes are from Belize (1 species), Ecuador (2), El Salvador (1), Guatemala (1), Mexico (6), Panama (3), and Venezuela (1).

Collections made in recent years in Mexico, Central America, and northern South America have revealed an unexpected specific diversity in the genus *Polycentropus*.

Yet, although the genus is often taken at light, it is rarely abundant and most species are encountered very infrequently. Within the area in consideration only three species

(*P. altmani* Yam., *P. guatemalensis* Flint, and *P. picana* Ross) have been collected at more than three localities. As a consequence most species, including the majority of those herein described, are known from a single collection, often from only one specimen, or a very few collections generally from nearby localities.

The species here described fall into two major groups, the *insularis* and *gertschi* groups. A third, the *arizonensis* group, also occurs in Mexico, but no undescribed species of this group are at hand.

Acknowledgments

I express my gratitude to those who have collected and donated this material to the National Collection: Dr. Joaquin Bueno Soria, Universidad Nacional Autonoma de Mexico, Mexico City (UNAM); Dr. Hindrik Wolda, Smithsonian Tropical Research Institute, Balboa, Panama, through Dr. Vincent Resh and Mr. Eric McElravy, University of California, Berkeley (UC-B); Dr. Yale Sedman, Western Illinois University, Macomb; Mr. Stephen R. Steinhauser, Sarasota, Florida; and especially to my co-workers at the National Museum of Natural History, Terry L. Erwin, Gary F. Hevel, John B. Heppner, and Paul J. Spangler who have collected so much of this and other valuable material over the years.

The *insularis* group

In addition to *P. insularis* Bks. (known from Grenada and Dominica), I also place *P. altmani* Yam. (Costa Rica, Nicaragua, Panama, Ecuador, Venezuela), *P. biappendiculatus* Flint (Surinam), and *P. surinamensis* Flint in the group. The form of the cercus is very characteristic: a long dorsomesal process first directed anteriorly then curving mesad and posteriorly, and a dorsolateral lobe which usually bears a small mesal lobe. The aedeagus bears apically a ventromesal lip-like lobe and the claspers usually are formed of an erect, dorsolateral lobe basally and a more elongate apical lobe. The new species *P. cuspidatus* is clearly a member of the group. The known

distribution of this group is from Nicaragua south to Ecuador, east across northern South America to Surinam, and north into the Lesser Antilles to Dominica.

Polycentropus cuspidatus, new species

Figures 1-4

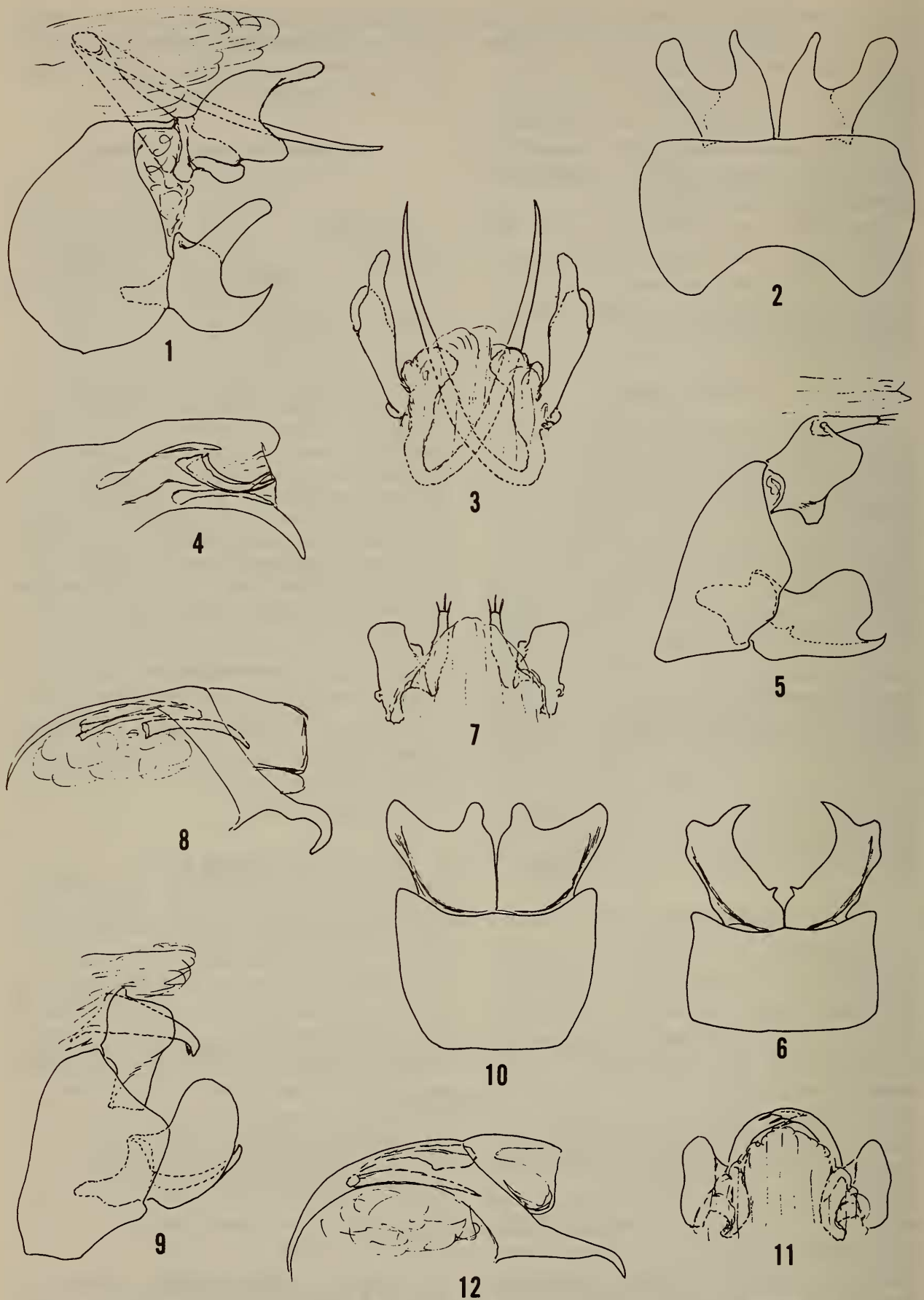
The species is closely related to *P. altmani* Yam., but is easily distinguished by the bifid dorsolateral lobe of the cercus, and the shorter, narrower lobes of the claspers which are of nearly equal size.

Adult.—Length of forewing, 6 mm. Color brown; antennae, legs and body ventrally, stramineous; forewing brown, densely maculate with golden hairs. Forewing with R_2 present (hindwings completely cleared and venation invisible). Male genitalia: Ninth segment with anterior margin evenly rounded; posterior margin cut-away dorsally. Tenth tergum membranous. Cercus with dorsolateral lobe elongate, posterior margin bifid; mesal lobe elongate, small; dorsomesal process very long, slender, directed first basad then curving apicad. Clasper with an elongate, narrow, dorsolateral lobe and a ventromesal pointed lobe. Aedeagus with a small apicoventral lip; internally with a pair of curved apicodorsal spines and a broad, flat ventral plate whose apex is bilobed in dorsal aspect, and a lightly sclerotized tubular structure.

Material.—Holotype, male: Ecuador, Prov. Pastaza, 16 kms. west of Puyo, 3 Feb 1976, Spangler, *et. al.*, at blacklight. USNM Type 76857.

The *gertschi* group

This is an extremely large group of species found from the southwestern United States south throughout Mexico and Central America at least as far as Ecuador and east to Venezuela. The characteristics of the group are rather difficult to define without finding some species that violates some part of the definition; the following is therefore a general statement. The clasper has a thin, erect dorsolateral lobe that joins a thicker ventromesal region which is delimited by a sharp mesal shelf or carina that bears one or two sharp toothlike projections. The cercus is typically composed of three parts: a slender rodlike dorsomesal lobe, a broader usually elongate or quadrate dorsolateral lobe (densely setate), and a ventral and slightly more mesal lobe usu-



Figs. 1-12. *Polycentropus cuspidatus*: 1, male genitalia, lateral; 2, ninth sternum and claspers, ventral; 3, cerci, dorsal; 4, aedeagus, lateral. *P. azulus*: 5, male genitalia, lateral; 6, ninth sternum and claspers, ventral; 7, cerci, dorsal; 8, aedeagus, lateral. *P. mayanus*: 9, male genitalia, lateral; 10, ninth sternum and claspers, ventral; 11, cerci, dorsal; 12, aedeagus, lateral.

ally broadly joined to the dorsolateral lobe. These three lobes are very variable in shape, manner of union, and often one will be reduced or lost. The aedeagus has an apical, liplike projection.

Polycentropus azulus, new species

Figures 5-8

P. dentoides Yam., *P. mayanus* n.sp. and this one form a very closely knit assemblage of species. There are rather small differences in the shape of the lobes of the cerci between the three, but the shape of the clasper is more distinctive. The large apicommesal and small basomesal teeth are distinctive in *azulus* as is the shape and position of the dorsolateral lobe.

Adult.—Length of forewing, 4.5 mm. Color pale brown in alcohol. Fore and hindwing with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin nearly vertical; hind margin slightly produced at midlength. Tenth tergum membranous. Cercus with a broad dorsolateral lobe, bearing a small ventral lobe; with a short, tubular dorsomesal lobe. Clasper with a thin, rounded, dorsolateral lobe; mesoventral shelf with a small basal tooth and a large apical tooth. Aedeagus with a recurved apicoventral lip; apically with a pair of lateral plates; internally with a single long spine and an indistinct tubular structure.

Material.—Holotype, male: Mexico, Edo. Chiapas, Agua Azul, 1 May 1978, H. Brailovsky. USNM Type 76858.

Polycentropus mayanus, new species

Figures 9-12

As stated under *azulus* n.sp., this species and *P. dentoides* are closely related. The shape of the clasper, especially the large, rounded dorsolateral lobe, and mesal shelf ending in an apical tooth, is distinctive.

Adult.—Length of forewing, 5-7 mm. Color dark brown; antennae, legs and body ventrally stramineous; forewing covered with dark brown hairs with numerous interspersed flecks of golden hair. Fore and hindwings with R_2 ; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin slightly oblique, posterior margin produced posteriad. Tenth tergum membranous. Cercus with a spinelike dorsomesal lobe, curved mesad; lateral lobe rounded, grading into a poorly differentiated ventromesal lobe. Clasper rounded, higher than long; mesal shelf well developed, ending in a well de-

veloped apical tooth. Aedeagus produced into a long, slender, pointed apicoventral lip; apex with thin lateral plates; internally with a basal tubular structure, and a single long spine.

Material.—Holotype, male: Mexico, Edo. Chiapas, Rió Chacamax, Palenque, 6 Dec 1975, C.M. & O.S. Flint, Jr., USNM Type 76859. Paratypes: Same data, 1♀.

Polycentropus lingulatus, new species

Figures 13-16

Polycentropus undescribed sp. "B": McElravy, *et al.*, in press, Table 1.

This species is closest to *P. digitus* Yam. with which it shares the well developed ventromesal lobe of the cercus. However, the clasper of *lingulatus* which is shorter and higher in outline and the mesal shelf which ends in a tooth is distinctive.

Adult.—Length of forewing, 5.5 mm. Color in alcohol, brown. Fore and hindwings with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin slightly oblique, posterior margin produced posteriad. Tenth tergum membranous. Cercus with a spinelike dorsomesal lobe whose apex bears 2 spiniform setae; lateral lobe simple, platelike, apex rounded; with a mesoventral plate developed into a small apicoventral point, with a vertical posterior margin extending as far posteriad as lateral lobe. Clasper with a large, rounded, dorsolateral lobe; mesal shelf produced into a sharp apical tooth. Aedeagus produced into a long, slender apical lip; apex with thin, lateral plates; internally with a basal tubular structure and six small spines.

Material.—Holotype, male: Panama, Prov. Chiriqui, Fortuna, 24-30 Nov. 76, H. Wolda (OTU #32). USNM Type 76860. Paratypes: Same, but taken between 24 Nov 1976 and 3 Jan 1978, 42♂. (USNM, UC-B).

Polycentropus veracruzensis, new species

Figures 17-21

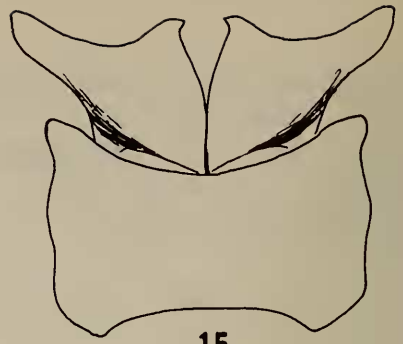
This species is yet another member of the *gertschi* group, closely related to *P. picana* Ross. From the latter, and all other known species of the group it is easily recognized by the claspers which are longer than high, bear a small apicommesal lobe, and a pair of basal teeth which are united for their basal halves.



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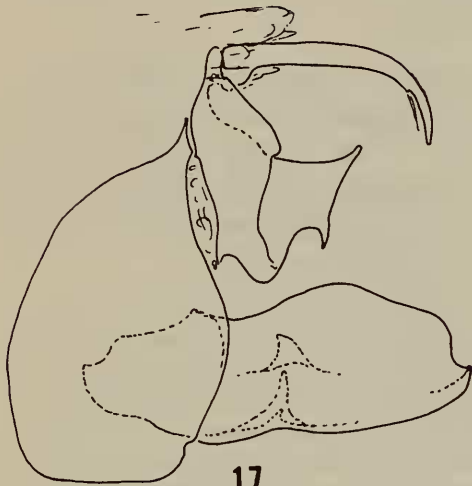
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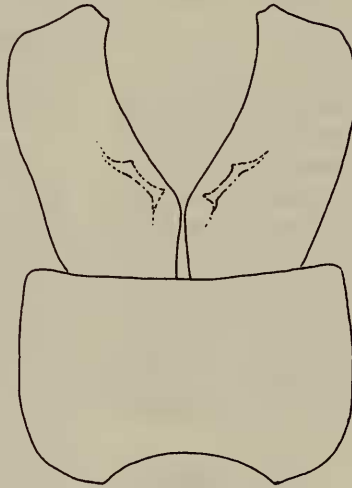
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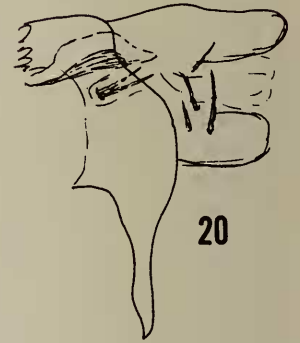
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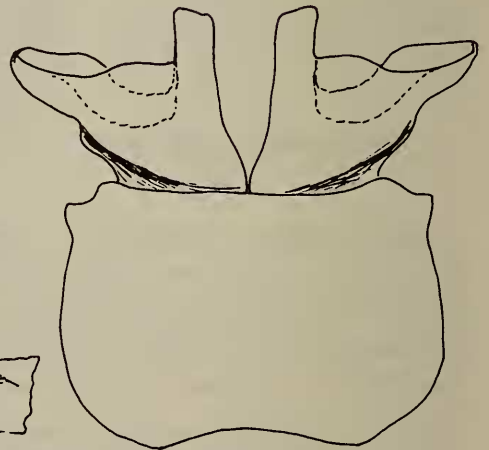
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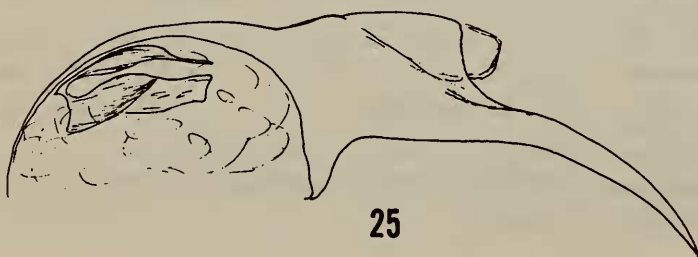
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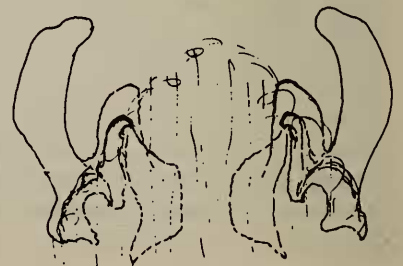
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Adult.—Length of forewing, 6–7.5 mm. Color dark brown, antennae, legs and body ventrally stramineous; forewing covered with dark brown hairs with numerous interspersed flecks of golden hair. Fore and hindwings with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin oblique, posterior margin sinuate. Tenth tergum membranous. Cercus with dorsomesal lobe elongate, spinelike, apex curved ventrad and mesad; lateral lobe small and barely developed, mesoventral lobe twice as long as lateral lobe and apicodorsal and ventral angles developed into short points. Clasper longer than high; mesal shelf poorly developed, with a short rounded apical tooth, and more basad a pair of teeth which are united basally. Aedeagus produced into a long, pointed ventral lip; apex with thin, lightly sclerotized lateral plates; internally with a basal tubular structure and 2 small groups of 2 or 4 short spines each.

Material.—Holotype, male: Mexico, Edo. Veracruz, near Huatusco, 25–26 July 1965, Flint & Ortiz. USNM Type 76861. Paratypes: Same data, 1♀; Metlac, near Fortin de las Flores, 30 June 1976, J. Bueno, 1♂ (UNAM). Las Minas, (near Perote), 3 Jan 1978, J. Bueno, 1♂ (UNAM); same, but 9 Sept 1977, 4♂ (USNM, UNAM).

Polycentropus hamiferus, new species

Figures 22–25

Although clearly a member of the *gerschi* group, this species does not seem to have any close relatives. The dorsomesal lobe of the cercus which is short, broad, and hooked apically, together with the very long lip of the aedeagus, are distinctive.

Adult.—Length of forewing, 9 mm. Color brown; antennae, legs and body ventrally, stramineous; forewing dark brown with numerous flecks of golden hair. Fore and hindwings with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior and posterior margins nearly vertical. Tenth tergum lightly sclerotized and setate dorsally. Cercus with an elongate, clavate dorsolateral lobe, an elongate, apically rounded ventromesal lobe, and a short dorsomesal lobe ending in an upturned hook. Clasper with a thin, rounded dorsolateral lobe, and a strong mesal shelf bearing an apical tooth, blunt in ventral aspect. Aedeagus produced

into a long, attenuate apicoventral lip; apicolateral plates weakly developed; internally with a complex, lightly sclerotized, basal structure roughly tubular in outline.

Material.—Holotype, male: El Salvador [Dept. Santa Ana] north of Metapan [Cerro Miramundo], 2300 m., 17 May 1969, S. Steinhauser. USNM Type 76862. Paratype: Same, but 23 Jan 1971, 1♀.

Polycentropus meridiensis, new species

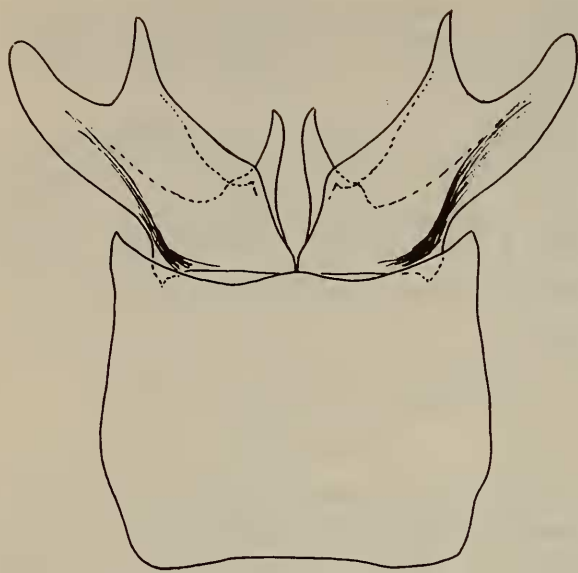
Figures 26–29

This species appears to be related to *P. connatus* Flint, also known from Venezuela. The shape of the clasper is virtually identical in the two, but the cerci are quite different. In *connatus* the dorsomesal lobe is united to the dorsolateral lobe, but in *meridiensis* it is, as usual, loosely associated to it.

Adult.—Length of forewing, 9–10 mm. Color brown, antennae, legs and body ventrally stramineous; forewing dark brown, with many flecks of golden hairs. Fore and hindwings with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin slightly oblique, posterior margin vertical. Tenth tergum membranous. Cercus with an elongate, clavate, dorsolateral lobe, produced ventrally into a strongly sclerotized lobe whose posterior margin bears a small lobe; with a free dorsomesal, slightly curved, pointed process. Clasper with a thin, apicodorsal lobe, mesal shelf with a strong spine basally, and ending in another spine projecting from posterior margin. Aedeagus with an elongate apicoventral lip; internally with a lightly sclerotized tubular structure ending in a darkened apical structure.

Material.—Holotype, male: Venezuela, Edo. Merida, 4 km. south of Santo Domingo, 19–23 Feb 1976, C.M. & O.S. Flint, Jr. USNM Type 76863. Paratypes: Same data, 3♂. Rio Santo Domingo, 5 km. northwest of Santo Domingo, 19 Feb 1976, C.M. & O.S. Flint, Jr., 3♂. Mucuy Fish Hatchery, 7 km. east of Tabay, 6600 ft., 10–13 Feb 1978, J. B. Heppner, 3♂ 1♀.

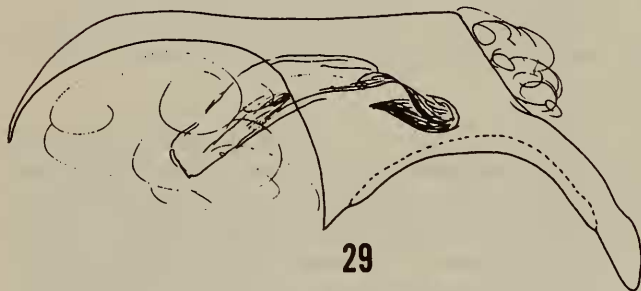
Figs. 13–25. *Polycentropus lingulatus*: 13, male genitalia, lateral; 14, cerci, dorsal; 15, ninth sternum and claspers, ventral; 16, aedeagus, lateral. *P. veracruzensis*: 17, male genitalia, lateral; 18, ninth sternum and claspers, ventral; 19, clasper, posterior; 20, aedeagus, lateral; 21 cerci, dorsal. *P. hamiferus*: 22, male genitalia, lateral; 23, ninth sternum and claspers, ventral; 24, cerci, dorsal; 25, aedeagus, lateral.



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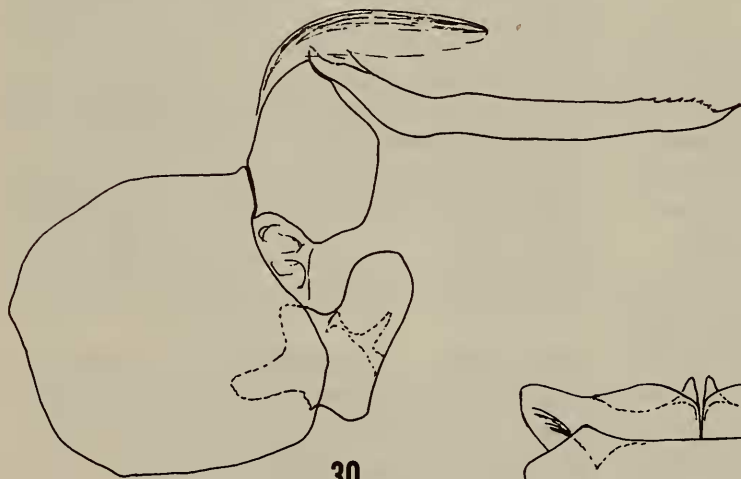
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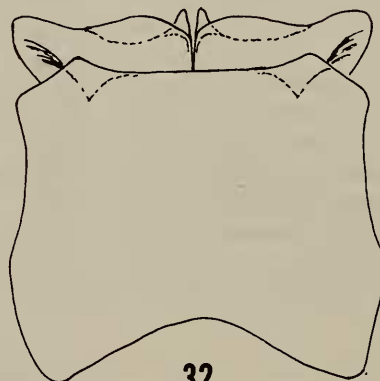
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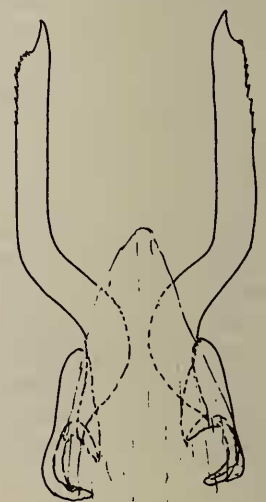
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Figs. 26–33. *Polycentropus meridiensis*: 26, ninth sternum and claspers, ventral; 27, male genitalia, lateral; 28, cerci, dorsal; 29, aedeagus, lateral. *P. exsertus*: 30, male genitalia, lateral; 31, aedeagus, lateral; 32, ninth sternum and claspers, ventral; 33, cerci, dorsal.

Polycentropus exsertus, new species

Figures 30–33

This is a very distinctive species, readily distinguished from its congeners by the exerted dorsomesal lobes of the cerci and the very narrow claspers.

Adult.—Length of forewing, 7 mm. Color brown; body ventrally and basal halves of legs, stramineous; forewing dark brown with scattered spots of golden hairs. Fore and hindwings with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin evenly rounded; posterior margin irregularly oblique. Tenth tergum with dorsal surface weakly sclerotized. Cercus with a platelike lateral lobe, and a long dorsal process distinctly angled in dorsal aspect. Clasper short, with a thin, narrow, rounded dorsolateral lobe; mesal shelf short with a distinct spine. Aedeagus with a short apicoventral lip; lightly sclerotized eversible plates apically; internally with a lightly sclerotized tubular structure.

Material.—Holotype, male: Ecuador, Prov. Pastaza, 16 kms. west of Puyo, 3 Feb 1976, Spangler, et al., at blacklight. USNM Type 76864. Paratypes: Same data, 1♂ 5♀.

Polycentropus zanclus, new species

Figures 34–37

This species and the following, *P. bellus*, are closely related, and easily recognized by the apparent loss of the dorsomesal lobe of the cercus, and great elongation of the clasper. The long, slender ventromesal lobe, and the short dorsolateral lobe are distinctive in *zanclus*.

Adult.—Length of forewing, 8 mm. Color brown, legs and body ventrally, stramineous; forewings dark brown, spotted with golden hairs. Fore and hindwings with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin broadly rounded, posterior margin slightly produced. Tenth tergum membranous. Cercus with a small dorsolateral lobe, broadly united to a long slender, sicklelike apicoventral lobe; dorsomesally with a small, rounded lobe. Clasper with a narrow, erect, thin basodorsal lobe, and a long, slender apical lobe; mesal shelf short, produced into a basodorsal hook. Aedeagus with apicoventral lip trifid, with short pointed submesal lobes and a longer, decurved mesal lobe; lateral plates apically; internally with a basodorsal, lightly sclerotized, roughly tubular structure, and 10 short ventral spines.

Material.—Holotype, male: Guatemala, [Dept. Quiche], El Quiche, 7.3 km. south of

Chichicastenago (15° 54' N, 91° 07' W), 2400 m., 28 May 1973, Erwin & Hevel. USNM Type 76865. Paratype: Same data, 1♂.

Polycentropus bellus, new species

Figures 38–41

This species and *P. zanclus* form a closely related pair of species. They are easily distinguished by the shape of the claspers and especially the cerci, which in *bellus* apparently consist of a long lobe, ending in a ventral tooth.

Adult.—Length of forewing, 8 mm. Color in alcohol, brown. Fore and hindwings with R_2 ; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin produced ventrally; posterior margin nearly vertical. Tenth tergum membranous. Cercus with dorsolateral and lateroventral lobes broadly joined, elongate, ending in a decurved hook; dorsomesal lobe lacking. Clasper with a narrow, erect, thin basodorsal lobe, and a long, slender apical lobe with a strong subbasal tooth. Aedeagus with apicoventral lip trifid, submesal lobes short and pointed, mesal lobe long and decurved; lateral plates apically; internally with a basodorsal, elongate, lightly sclerotized tubular structure, and 12 short ventral spines.

Material.—Holotype, male: Mexico, Edo. Chiapas, Santa Elena, Rio Santo Domingo (39 km. east of Lagunas Montebello), 9 Apr 1979, Barrera. USNM Type 76866. Paratype: Same, but 6 Apr 1979, J. Bueno S., 1♂ (UNAM).

Polycentropus fortuneus, new species

Figures 42–45

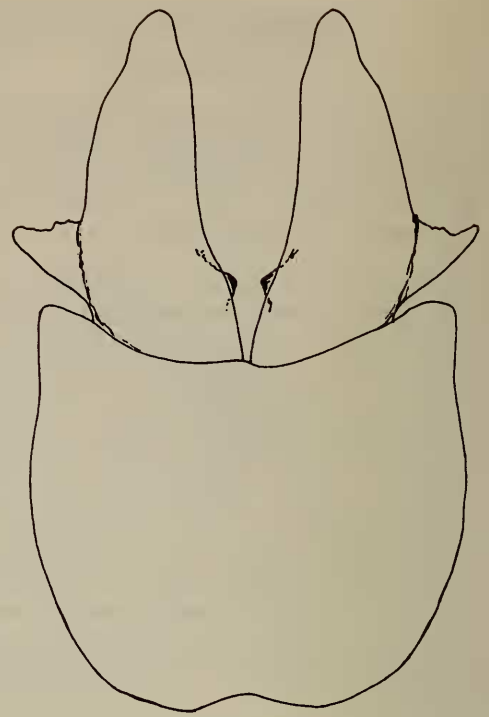
Polycentropus undescribed sp. "A": McElravy, et al., Table 1.

This and the following new species, *P. acanthogaster*, appear to be slightly related. In both species the cercus is reduced to only two lobes, in *fortuneus* there are clearly the dosomesal and lateral lobes. In addition the elongate, rather triangular outline of the clasper in this species is distinctive.

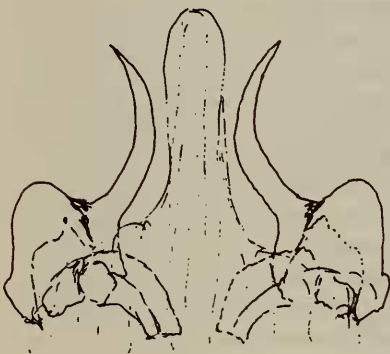
Adult.—Length of forewing, 6 mm. Color in alcohol, brown. Fore and hindwings with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior margin nearly vertical, posterior margin produced posteriad. Tenth tergum membranous. Cercus with an elongate spine-



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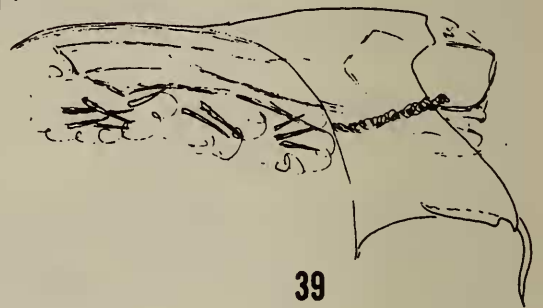
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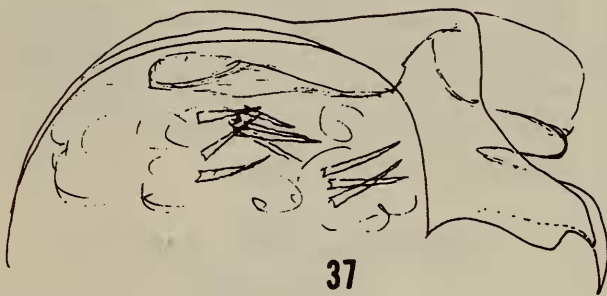
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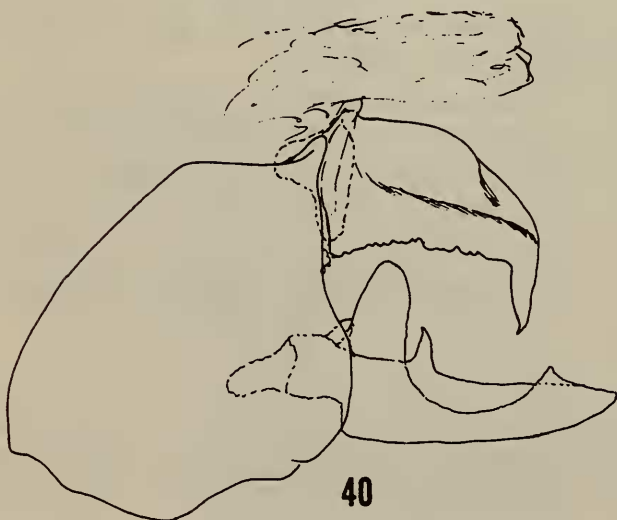
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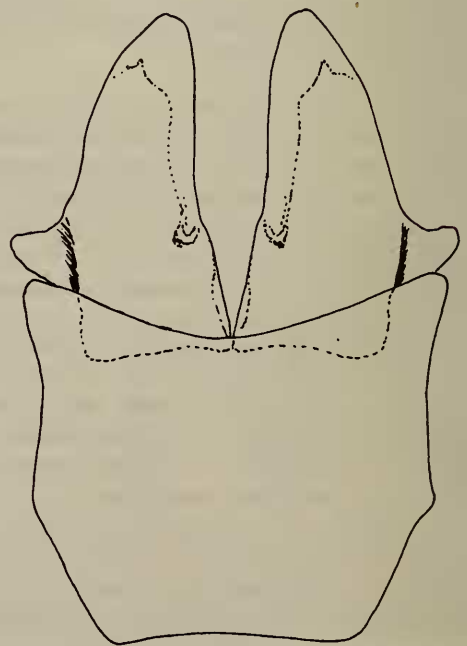
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like dorsomesal lobe whose apex is sharply curved ventrad and mesad; lateral lobe simple, platelike, apex rounded. Clasper with a broad, slightly produced dorsolateral margin; mesal shelf narrow, ending in a sharp spine at its apex, with a basomesal pad of spine-like setae. Aedeagus produced into a long, slender apicoventral lip; thin, lateral plates apically; internally with a basal tubular structure surmounting a single spine.

Material.—Holotype, male: Panama, Prov. Chiriqui, Fortuna, 10–16 Nov 1976, H. Wolda (OTU #7). USNM Type 76867. Paratypes: Same, but taken between 10 Nov 1976 to 13 Dec 1977, 39♂ (USNM, UC-B).

Polycentropus acanthogaster, new species

Figures 46–49

Polycentropus undescribed sp. "C": McElravy, *et al.*, in press, Table 1.

Although the clasper and aedeagus of this species are absolutely typical of the *gertschi* group, the cercus is quite different. Both this species and the preceding have two-parted cerci, but in *acanthogaster* it is not clear which lobe is present in addition to the lateral one. The position is that of the ventromesal lobe, but the shape is more typical of the dorsomesal lobe. Although this species lacks the small, dorsomesal, digitate process of the cercus of the following species, the ventral lobe of *acanthogaster* may represent a further development of the ventral process of *bonus*.

Adult.—Length of forewing, 5 mm. Specimen completely cleared, in alcohol. Fore and hindwings with R₂ present; hindwing lacking crossvein between R₃ and R₄. Male genitalia: Ninth segment with anterior margin strongly rounded ventrally, posterior margin vertical. Tenth tergum membranous. Cercus lacking dorsomesal lobe; lateral lobe simple, platelike, apex oblique; with a strong spinelike process from ventromesal margin, sharply curved dorsad. Clasper with a thin, dorsolateral lobe, and a strong mesal shelf bearing a sharp tooth. Aedeagus produced into a short apicoventral lip ending in a pair of short lateral lobes and a short, pale, mesal process; apex with thin lateral plates; internally with a pair of slender spines attached to an irregular base.

Material.—Holotype, male: Panama, Prov. Chiriqui, Fortuna, 1–7 June 1977, H. Wolda (OTU #55). USNM Type 76868. Paratypes: Same, but 17–23 Nov 1976, 1♂; same, but 5–11 June 1977, 1♂; same, but 4–10 May 1977, 1♂; same, but 18–24 May 1977, 1♂; same, but 5–11 Oct 1977, 1♂ (USNM, UC-B).

Polycentropus bonus, new species

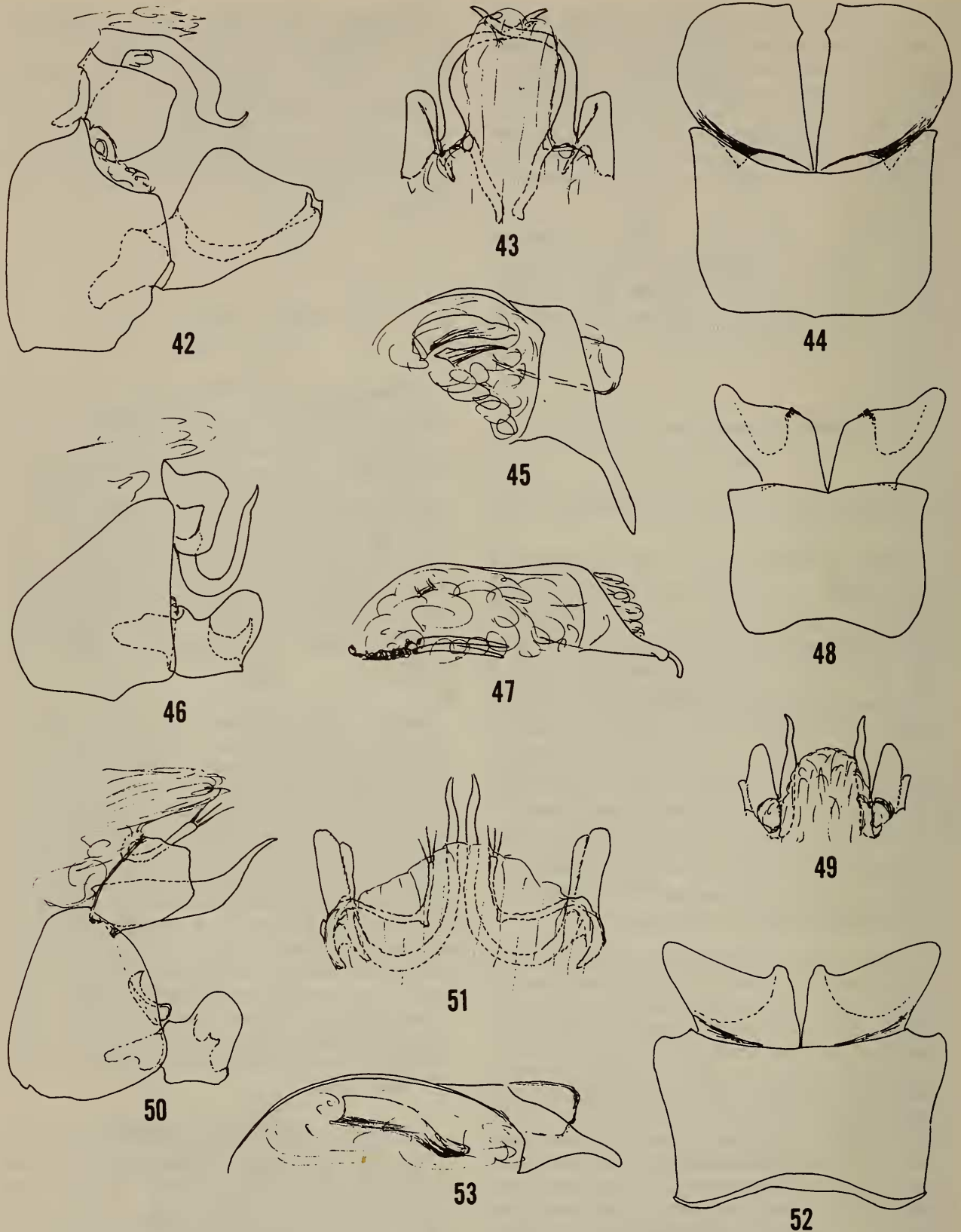
Figures 50–53

Belonging to the *gertschi* group this species is related to *P. acanthogaster*, *clarus* and *alatus*. With *acanthogaster* it shares the general structure and shape of the claspers, and with *clarus* and *alatus* the possession of a lightly sclerotized, process-bearing structure from the inner face of the cercus and strongly sclerotized ventral support for the aedeagus. It differs from each species in the precise shape of claspers, cerci, and aedeagus.

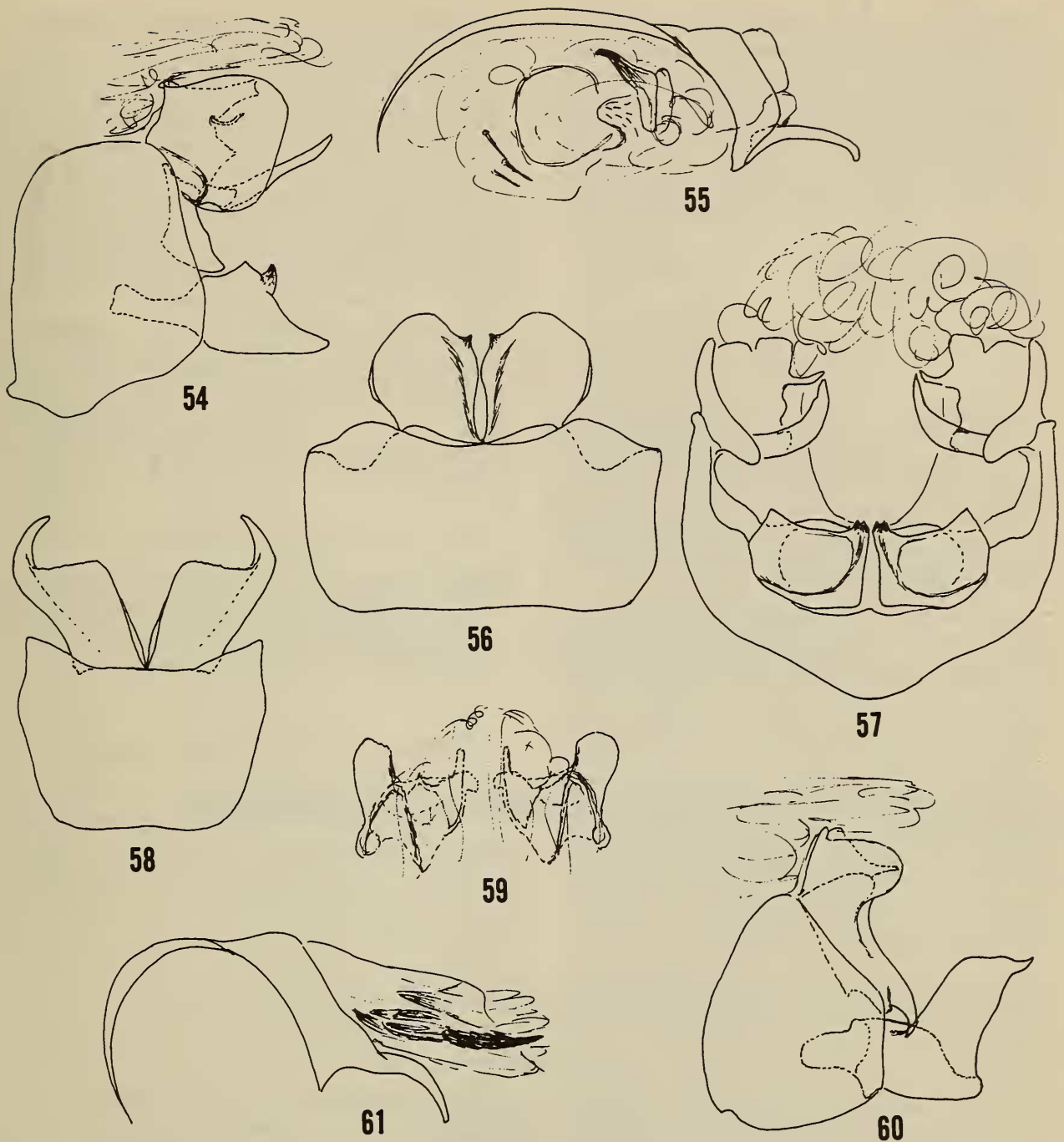
Adult.—Length of forewing, 5–5.5 mm. Specimen in alcohol, brown. Fore and hindwings with R₂ present; hindwing lacking crossvein between R₃ and R₄. Male genitalia: Ninth segment with anterior and posterior margins slightly expanded ventrad. Tenth tergum membranous. Cercus with a thin, lateral lobe, about as long as broad; ventrobasally giving rise to a long, curved spinelike process; inner face developed into a slender sclerotized area bearing a slender digitate lobe near the midline. A platelike sclerite surrounding aedeagus laterally and ventrally. Clasper with a thin, rounded dorsolateral lobe; mesal shelf bearing a blunt tooth at midlength. Aedeagus produced into a short, pointed, mesoventral lip; thin, lateral plates apically; internally with a tubular lightly sclerotized structure (paratype also contains a cluster of 9 short spines).

Material.—Holotype, male: Belize, Cayo Dist., Rió Privassion, Blancaneaux Lodge, 9–11 July 1973, Y. Sedman. USNM Type 76869. Paratypes: Same data, 1♀. Mexico, Edo. Chiapas, Bonampak, 3 May 1978, E. Barrera, 1♂ (UNAM).

Figs. 34–41. *Polycentropus zanclus*: 34, male genitalia, lateral; 35, ninth sternum and claspers, ventral; 36 cerci, dorsal; 37, aedeagus, lateral. *P. bellus*: 38, cerci, dorsal; 39, aedeagus, lateral; 40, male genitalia, lateral; 41, ninth sternum and claspers, ventral.



Figs. 42-53. *Polycentropus fortuneus*: 42, male genitalia, lateral; 43, cerci, dorsal; 44, ninth sternum and claspers, ventral; 45, aedeagus, lateral. *P. acanthogaster*: 46, male genitalia, lateral; 47, aedeagus, lateral; 48, ninth sternum and claspers, ventral; 49, cerci, dorsal. *P. bonus*: 50, male genitalia, lateral; 51, cerci, dorsal; 52, ninth sternum and claspers, ventral; 53, aedeagus, lateral.



Figs. 54-61. *Polycentropus clarus*: 54, male genitalia, lateral; 55, aedeagus, lateral; 56, ninth sternum and claspers, ventral; 57, male genitalia, less aedeagus, posterior. *P. alatus*: 58, ninth sternum and claspers, ventral; 59, cerci, dorsal; 60, male genitalia, lateral; 61, aedeagus, lateral.

Polycentropus clarus, new species

Figures 54-57

Although this species lacks most of the distinctive characters of the *gertschi* group, it is placed in the group because it seems to represent an extreme development of some of the tendencies apparent in *P. bonus* which is more clearly a member of the

group. The shapes of the clasper and cercus are unique in *clarus*.

Adult.—Length of forewing, 6.5 mm. Color in alcohol, brown, appearing speckled with paler marks. Fore and hindwings with R_2 present; hindwing lacking crossvein between R_3 and R_4 . Male genitalia: Ninth segment with anterior and posterior margins nearly vertical. Tenth tergum membranous. Cercus with a rounded outer lobe, and a platelike mesal lobe bearing a slender process at midlength and a longer,

stouter process ventrally, a flattened sclerite between cercus and clasper. Clasper trianguloid in lateral aspect, with dark, erect dorsomesal and broader dorso-lateral points. Aedeagus produced into a long, slender apicoventral lip; thin lateral plates apically; internally with a pointed, tubular structure, and 3 small spines.

Material.—Holotype, male: Mexico, Edo. Veracruz, Arroyo Claro, Sierra Sta. Marta, Los Tuxtlas, 18 Dec 1976, J. Bueno S. USNM Type 76870.

Polycentropus alatus, new species

Figures 58-61

This species apparently is related to the preceding two species on the basis of the presence of a small digitate lobe borne from the inner face of the cercus. However, the shape of ventromesal lobe of the cercus and the clasper is distinctive.

Adult.—Length of forewing, 5.5 mm. Color in alcohol brown. Fore and hindwings with R₂ present; hindwing lacking crossvein between R₃ and R₄. Male

genitalia: Ninth segment with anterior and posterior margins slightly expanded ventrad. Tenth tergum membranous. Cercus, with dorsolateral lobe small, rounded apically, united to a long, declivious ventral lobe which ends in a short hook; dorsomesally with a lightly sclerotized area bearing a slender digitate lobe near midline. Clasper with a thin, erect lateral lobe ending in a spinelike process; mesal shelf unornamented. Aedeagus with a apicoventral lip produced into a slender process; thin lateral plates apically; internally with a single large spine and a complex of lightly sclerotized ill-defined structures.

Material.—Holotype, male: Mexico, Edo. Chiapas, Colon (Lagartero), (30 km. northeast of Ciudad Cuauhtemoc), 8 Apr 1979, J. Bueno. USNM Type 76871. Paratypes: Same data 7♂ 1♀ (USNM, UNAM).

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Nesting Behavior and Prey of Argogorytes Ashmead (Hymenoptera: Sphecidae)

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ABSTRACT

The nesting behavior and prey of 4 species of *Argogorytes*, a primitive gorytine genus in the sphecid subfamily Nyssoninae, are reviewed. The wasps nest in the ground and dig relatively shallow, multicellular nests, provisioning the cells with 3 to 30 homopterous prey. The Palearctic *A. mystaceus* and *A. fargeii* prey on nymphs of the genus *Aphrophora* (Aphrophoridae). *A. carbonarius*, endemic to New Zealand, preys on nymphs of the genus *Carystoterpa* (Aphrophoridae). The European *A. hispanicus* preys on adults of the genus *Hysteropterum* (Issidae). The nesting behavior of *Argogorytes* is discussed and compared with that of related gorytine genera.

The genus *Argogorytes* was established by Ashmead (1899) for those gorytine wasps with a broad head, well developed epicnemium (prepectus), strong oblique groove on the mesopleuron, and other features. Bohart & Menke (1976) gave a full

generic diagnosis and considered subgeneric divisions to be unjustified. *Argogorytes* is undoubtedly one of the most primitive gorytine genera and is nearly worldwide in distribution, being absent only from the Afrotropical (Ethiopian) region.